



UNITED STATES PATENT AND TRADEMARK OFFICE

W
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,238	12/05/2000	Brian A. Leete	884.335US1	7903

7590 06/20/2003

Schwegman, Lundberg, Woessner & Kluth, P.A.
P.O. Box 2938
Minneapolis, MN 55402

EXAMINER

LEE, CHRISTOPHER E

ART UNIT	PAPER NUMBER
2189	

DATE MAILED: 06/20/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/730,238	LEETE, BRIAN A.
	Examiner	Art Unit
	Christopher E. Lee	2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
 5) Claim(s) ____ is/are allowed.
 6) Claim(s) 1-25 is/are rejected.
 7) Claim(s) ____ is/are objected to.
 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 05 December 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . | 6) <input type="checkbox"/> Other: _____ |

**DETAILED ACTION*****Claim Objections***

1. Claims 13, 24 and 25 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

According to the claim dependency of the claim 13, the claim is dependent claim of the claim 11. However, the previous claim 11 is not related with the subject matter “computing unit”, but related with the subject matter “apparatus”. Thus, the claim 13 fails to further limit the subject matter of a previous claim 11. The Examiner assumes the claim 13 is dependent claim of the claim 12 for the purpose of the claim rejection based on a prior art.

According to the claim dependency of the claims 24 and 25, each one of the claims is dependent claim of the claim 13. However, the previous claim 13 is not related with the subject matter “cable”, but related with the subject matter “computing unit”. Thus, the claims 24 and 25 fail to further limit the subject matter of a previous claim 13. The Examiner assumes the claims 24 and 25 are respectively dependent claims of the claim 23 for the purpose of the claim rejection based on a prior art.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Yaguchi et al. [JP 2000-232969 A; hereinafter Yaguchi].

Referring to claim 1, Yaguchi discloses an apparatus (i.e., USB hub 10 of Fig. 2), comprising: a housing (i.e., main part 11 of Fig. 1 and Fig. 2); a power supply (i.e., switching power supply 15 of Fig. 2) enclosed in said housing (See Fig. 2); and a bus hub (i.e., USB hub circuit 13 of Fig. 2) enclosed in said housing (See Fig. 2).

Referring to claim 2, Yaguchi teaches said bus hub further comprises an upstream port (i.e., port from USB hub circuit 13 for USB cable 14 in Fig. 2).

Referring to claim 3, Yaguchi teaches said bus hub comprises; at least one downstream port (i.e., USB ports 12 in Fig. 2) to connect to at least one downstream device (i.e., Keyboard, Mouse, Printer, etc. in Fig. 2).

Referring to claim 4, Yaguchi teaches said bus hub is self powered (See col. 2-3, paragraph 11; i.e., the DC voltage (5V) from switching power supply 15 may be supplied to each USB port 12 and USB cable 14 through USB hub circuit 13 in Fig. 2).

Referring to claim 11, Yaguchi teaches that said power supply (i.e., switching power supply 15 of Fig. 2) further comprises an alternating current (i.e., AC 100V) to direct current (i.e., DC 5V) converter (See col. 3, paragraph 13).

4. Claims 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsai [US 6,283,789 B1].

Referring to claim 21, Tsai discloses a cable (i.e., cable system 300 of Fig. 1) comprising: a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is

connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D₋ 2a and D₊ 3a in Fig. 4).

Referring to claim 22, Tsai teaches an upstream plug (i.e., B connector 20 and 21 in Fig. 1, as combined) to connect to both an upstream bus receptacle and a power receptacle (i.e., peripheral device port system 100 of Fig. 6), wherein said power receptacle draws electric power from said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system clearly anticipates said power receptacle draws electric power from said computer power wire).

Referring to claim 23, Tsai teaches a downstream plug (i.e., A connector 10 and 11 in Fig. 1, as combined) to electrically connect to both a downstream bus receptacle and a power receptacle (i.e., main device port system 200 of Fig. 7), wherein said power receptacle is to supply electric power to said computer power wire (See col. 3, lines 59-63; i.e., wherein in fact that delivering extra power to the peripheral device port system clearly anticipates said power receptacle is to supply electric power to said computer power wire), and wherein said downstream bus receptacle is connect to said device power wire, said device ground wire, and said plurality of signal wires (See col. 4, lines 1-11; i.e., wherein in fact that power and data are transmitted by the first cable (e.g., USB cable) between the first port and one of the two ports on peripheral device port system clearly anticipates said downstream bus receptacle is connect to said device power wire, said device ground wire, and said plurality of signal wires).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Urade et al. [US 6,272,644 B1; hereinafter Urade].

Referring to claim 5, Yaguchi discloses all the limitations of the claim 5 except that does not teach said bus hub is bus powered.

Urade discloses a bus hub (i.e., USB hub 11 of Fig. 4) is bus powered by a power controller 21 (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power controller, as disclosed by Urade, in said bus hub, as disclosed by Yaguchi, for the advantage of allowing a bus hub controller (i.e., USB hub controller) to support power mode setting as applied by an external device, either bus powered or self powered (See Urade, col. 4, lines 36-38).

Referring to claim 6, Yaguchi discloses all the limitations of the claim 6 except that does not teach a hub repeater connected to said upstream port.

Urade discloses a USB hub 11 (Fig. 4), wherein a hub repeater (i.e., Hub Repeater 12 of Fig. 4) connected to an upstream port (i.e., Root Port 13 of Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Yaguchi, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port (i.e., root port; See Urade, col. 3, lines 60-62).

7. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1].

Referring to claim 7, Yaguchi discloses all the limitations of the claim 7 except that does not teach a downstream receptacle connected to both the power supply and the bus hub.

Tsai discloses a data and power transmitting cable system (See Abstract), wherein a downstream receptacle (i.e., peripheral device port system 100 of Fig. 18) connected to both a power supply and a bus hub (See col.3, lines 51-56; i.e., wherein in fact that the peripheral device port has a first port and a second port, and the cable system connects the first port of the peripheral device with the two ports of the

main device for transmission of power and data implies that said downstream receptacle connected to both a power supply and a bus hub).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said cable system, as disclosed by Tsai, in said apparatus, as disclosed by Yaguchi, for the advantage of providing power for a device connected via a USB or IEEE 1394 cable that consumes a little more power than is admitted through said USB or IEEE 1394 cable (See Tsai, col. 1, lines 64-67).

Referring to claim 8, Tsai teaches a cable (i.e., cable system 300 of Fig. 1) connected to said downstream receptacle (i.e., peripheral device port system 100 of Fig. 6), wherein said cable further comprises: a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D. 2a and D. 3a in Fig. 4).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1] as applied to claims 7 and 8 above, and further in view of Decuir [US 5,781,028 A].

Referring to claim 9, Yaguchi, as modified by Tsai, discloses all the limitations of the claim 9 except that does not teach said plurality of signal wires further comprises a signal twisted pair. Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by

Yaguchi, as modified by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yaguchi [JP 2000-232969 A] in view of Tsai [US 6,283,789 B1] as applied to claims 7 and 8 above, and further in view of Sanchez [US 6,446,867 B1].

Referring to claim 10, Yaguchi, as modified by Tsai, discloses all the limitations of the claim 10 except that does not teach said plurality of signal wires further comprises a fiber optic channel. Sanchez discloses a electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Yaguchi, as modified by Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Decuir, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

10. Claims 12, 13, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1].

Referring to claim 12, Shimazaki discloses a computing unit (i.e., electronic device 100 of Fig. 1), comprising: a computer (i.e., pen-input type personal computer; See col. 2, lines 65-66) comprising: an upstream receptacle (i.e., USB port 112 of Fig. 1) to deliver data signals to said computer (See col. 3, lines 19-22), a power receptacle (i.e., AC-DC adapter connection port 111 of Fig. 1) to deliver electrical power to said computer (See col. 3, lines 16-18).

Shimazaki does not disclose a power hub comprises: a housing, a power supply enclosed in said housing, and a bus hub enclosed in said housing.

Yaguchi discloses a power hub (i.e., USB hub 10 of Fig. 2), wherein said power hub comprising: a housing (i.e., main part 11 of Fig. 1 and Fig. 2); a power supply (i.e., switching power supply 15 of Fig. 2) enclosed in said housing (See Fig. 2); and a bus hub (i.e., USB hub circuit 13 of Fig. 2) enclosed in said housing (See Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power hub, as disclosed by Yaguchi, in said computing unit, as disclosed by Shimazaki, for the advantage of providing a convenient current supply to the various peripheral devices connected to a port (i.e., USB port) offering said power hub (i.e., USB hub) without any device power wiring complication (See Yaguchi, col. 1, paragraph 6).

Shimazaki, as modified by Yaguchi, does not expressly teach said power hub is coupled to said upstream receptacle and said power receptacle via a cable.

Tsai discloses a data and power transmitting cable system (See Abstract), wherein a power hub is coupled to a upstream receptacle (i.e., A connector 10 of Fig. 2) and a power receptacle (i.e., A connector 11 of Fig. 3; See col.3, lines 51-56; i.e., wherein in fact that the peripheral device port has a first port and a second port, and the cable system connects the first port of the peripheral device with the two ports of the main device for transmission of power and data implies that a power hub is coupled to a upstream receptacle and a power receptacle) via a cable (i.e., cable system 300 of Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said cable system, as disclosed by Tsai, in said computing unit, as disclosed by Shimazaki, as modified by Yaguchi, so as to couple said power hub to said upstream receptacle and said power receptacle via said cable with the advantage of providing power for a device connected via a USB

or IEEE 1394 cable that consumes a little more power than is admitted through said USB or IEEE 1394 cable (See Tsai, col. 1, lines 64-67).

Referring to claim 13, Tsai teaches said cable (i.e., cable system 300 of Fig. 1) further comprises: a device power wire (i.e., wire of cable 15, which is connected to V_{bus} 1a of Fig. 4); a device ground wire (i.e., wire of cable 15, which is connected to GND 4a of Fig. 4); a computer power wire (i.e., wire of cable 16, which is connected to V_{bus} 1a of Fig. 5); a computer ground wire (i.e., wire of cable 16, which is connected to GND 4a of Fig. 5); and a plurality of signal wires (i.e., wires of cable 15, which are connected to D.2a and D₊3a in Fig. 4).

Referring to claim 16, Yaguchi teaches said bus hub further comprises an upstream port (i.e., port from USB hub circuit 13 for USB cable 14 in Fig. 2).

Referring to claim 17, Yaguchi teaches said bus hub comprises; at least one downstream port (i.e., USB ports 12 in Fig. 2) to connect to at least one downstream device (i.e., Keyboard, Mouse, Printer, etc. in Fig. 2).

Referring to claim 19, Yaguchi teaches said bus hub is self powered (See col. 2-3, paragraph 11; i.e., the DC voltage (5V) from switching power supply 15 may be supplied to each USB port 12 and USB cable 14 through USB hub circuit 13 in Fig. 2).

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Decuir [US 5,781,028 A].

Referring to claim 14, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 14 except that does not teach said plurality of signal wires further comprises a signal twisted pair.

Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Sanchez [US 6,446,867 B1].

Referring to claim 15, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 15 except that does not teach said plurality of signal wires further comprises a fiber optic channel.

Sanchez discloses a electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Decuir, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

13. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazaki [US 6,338,143 B1] in view of Yaguchi [JP 2000-232969 A] and Tsai [US 6,283,789 B1] as applied to claims 12, 13, 16, 17 and 19 above, and further in view of Urade [US 6,272,644 B1].

Referring to claim 18, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 18 except that does not teach a hub repeater connected to said upstream port.

Urade discloses a USB hub 11 (Fig. 4), wherein a hub repeater (i.e., Hub Repeater 12 of Fig. 4) connected to an upstream port (i.e., Root Port 13 of Fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said hub repeater, as disclosed by Urade, in said bus hub, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, so as to manage port connectivity between a selected downstream functional device and a host computer connected to said upstream port (i.e., root port; See Urade, col. 3, lines 60-62).

Referring to claim 20, Shimazaki, as modified by Yaguchi and Tsai, discloses all the limitations of the claim 20 except that does not teach said bus hub is bus powered.

Urade discloses a bus hub (i.e., USB hub 11 of Fig. 4) is bus powered by a power controller 21 (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included said power controller, as disclosed by Urade, in said bus hub, as disclosed by Shimazaki, as modified by Yaguchi and Tsai, for the advantage of allowing a bus hub controller (i.e., USB hub controller) to support power mode setting as applied by an external device, either bus powered or self powered (See Urade, col. 4, lines 36-38).

14. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai [US 6,283,789 B1] in view of Decuir [US 5,781,028 A].

Referring to claim 24, Tsai discloses all the limitations of the claim 24 except that does not teach said plurality of signal wires further comprises a signal twisted pair.

Decuir discloses a system for a switched data bus termination (Fig. 6), wherein a plurality of signal wires (i.e., USB data signal wires in Fig. 6) comprises a signal twisted pair (i.e., twisted pair data cable 72 of Fig. 6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said twisted pair cable, as disclosed by Decuir, for said signal wires, as disclosed by Tsai, for the advantage of supporting high speed version of USB (See Decuir, col. 5, lines 5-7).

15. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai [US 6,283,789 B1] in view of Sanchez [US 6,446,867 B1].

Referring to claim 25, Tsai discloses all the limitations of the claim 25 except that does not teach said plurality of signal wires further comprises a fiber optic channel.

Sanchez discloses a electro-optic interface system (Fig. 2A), wherein a plurality of signal wires (i.e., a plurality of optical links in Fig. 2A), which are driven by a laser module 250 (Fig. 2A) and a photo detector 260 (Fig. 2A), comprises a fiber optic channel (i.e., optical channel of Fiber Optic Cable 135 in Fig. 2A).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said fiber optic channel with its driver, as disclosed by Sanchez, for signal wires, as disclosed by Tsai, for the advantage of providing an electro-optic system of operation for communicating high aped digital signals between two or more electronic systems (See Decuir, col. 1, lines 57-60) without spreading electromagnetic noise, which is well known to one of ordinary skill in the art of fiber optical communication.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

With regard to USB Hub,

Osakada et al. [US 6,308,239 B1] disclose interactive switching apparatus and switching control method.

Kang [US 6,577,337 B1] discloses display apparatus for visual communication.

Kobayashi [JP 2000-187537 A] discloses USB port hub.

With regard to Cabling,

Shin et al. [US 6,321,340 B1] disclose cable management system and computer therewith.

Begley et al. [US 6,558,201 B1] disclose adapter and method for converting data interface hardware on a computer peripheral device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H. Rinehart can be reached on 703-305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Christopher E. Lee
Examiner
Art Unit 2189

cel/ *CCR*
June 14, 2003



RUPAL DHARIA
PRIMARY EXAMINER